

**METHODS AND DEVICES FOR IN-SITU CROSSLINKING
OF VASCULAR TISSUE**

Abstract of the Disclosure

5 A method for treating vulnerable plaque by crosslinking the fibrous cap, or collagenous extra cellular matrix layer, on the inner wall or vascular intima of the vessel. The method includes providing a vascular catheter, delivering a crosslinking agent to the extra cellular matrix layer with the vascular catheter, and irradiating the extra cellular matrix layer and crosslinking agent with light energy emitted from the vascular catheter.

10 The crosslinking agent may be a saccharide, Riboflavin or Riboflavin-5-phosphate, or a photooxidizer. The irradiation energy is emitted from one or more LEDs mounted on the catheter. Catheter balloons are used to clear the optical path of blood so that short wavelength light can be used. The balloons may also be used to facilitate delivery of the crosslinking agent to the extra cellular matrix layer. A perfusion lumen ensures

15 continuous blood flow during the procedure.